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UNITED STATES PATENT AND TRADEMARK OFFICE

Trademark Trial and Appeal Board

In re Biorefining, Inc.

Serial No. 78206550

Janal M. Kalis of Schwegman Lundberg Woessner & Kluth for Biorefining, Inc.

Gina M. Fink, Trademark Examining Attorney, Law Office 103 (Michael Hamilton, Managing Attorney).

Before Quinn, Bucher and Holtzman, Administrative Trademark Judges.

Opinion by Holtzman, Administrative Trademark Judge:

An application has been filed by Biorefining, Inc. to register the mark BIOREFINING for the following services, as amended: "Custom manufacture of specialty chemicals for others in the nature of L-arabinose, hemicellulose, pectins, proteins, monosaccharides, oligosaccharides, and polysaccharides using

pressure and temperature based reaction kinetics" in International Class 40.[1]

The trademark examining attorney has refused registration on the ground that applicant's mark is merely descriptive of applicant's services under Section 2(e)(1) of the Trademark Act.

When the refusal was made final, applicant appealed. Briefs have been filed. An oral hearing was not requested.

The examining attorney argues that the mark BIOREFINING is descriptive of a feature of applicant's services in that applicant's custom manufacturing services "free sugars from unwanted material using the science of biology." (Brief, p. 3.) In support of her position, the examining attorney relies on a dictionary definition of "bio" as a "prefix indicating that the word has something to do with life, living things, or the science of biology";[2] definitions of "refining" as "to free (as metal, sugar or oil) from impurities or unwanted material"[3] and "the process of removing impurities (as from oil or metals or sugar etc.)";[4] excerpts of abstracts and summaries of patent applications and granted patents; a page from applicant's website

[1] Application Serial No. 78206550 filed January 23, 2003 based upon an allegation of a bona fide intention to use the mark in commerce.

[2] *http://biotech.icmb* ("BioTech Life Science Dictionary").

[3] *www.m-w.com* ("Merriam-Webster Online").

[4] *http://onelook.com* ("OneLook Dictionary Search"; "Quick definitions").

(*www.biorefining.com*) describing applicant's process for manufacturing chemicals; pages from third-party websites referring to "biorefineries"; and excerpts of articles from the NEXIS database containing references to "biorefining" and "biorefineries."

Based on this evidence, the examining attorney concludes that "biorefining" describes processes for extracting sugars and specialty chemicals; that the process of "biorefining" is not limited to the applicant's proprietary process; and that applicant's process is merely another way of "biorefining" materials.

In response to the examining attorney's contention that the term is descriptive, applicant states:

> The Applicant is using a patented, novel process for extracting chemicals heretofore not extractable in their native form. The process is novel in that it relies upon a sophisticated use of temperature and pressure and does not rely upon traditional wet chemistry, as is used in the examples presented by the Examiner. This novel process imparts a specific type of process signature -- products are extracted in high yield in their native form. The term "Biorefining" is then not used to mark a run of the mill ethanol-type extraction, but a distinguishable patented, unique and unexpectedly successful process that yields novel products." (Response dated January 12, 2004, p. 1; see also Brief, p. 2.)

Applicant disputes the examining attorney's characterization of "biorefining" as "the process of removing impurities (as from oil or metals or sugar, etc.) using the science of biology" and

her characterization of applicant's process as "custom manufacturing services [that] free sugars from unwanted material using the science of biology." Applicant maintains that it "does not use the 'science of biology' to manufacture specialty chemicals but rather uses pressure and temperature-based reaction kinetics" which, according to applicant, "are not the 'science of biology.'" and that the chemicals produced by applicant "are not living matter."[5] (Reply Brief, pp. 1, 3.)

A term is merely descriptive within the meaning of Section 2(e)(1) if it immediately conveys knowledge of a quality, feature, function or characteristic of the services in connection with which it is used. In re Gyulay, 820 F.2d 1216, 3 USPQ2d 1009 (Fed. Cir. 1987). Moreover, the question of whether a particular term is merely descriptive must be determined not in the abstract or on the basis of guesswork, but in relation to the services for which registration is sought. See In re Remacle, 66

[5] Applicant, for the first time in its reply brief, refers to the results of a Google search for "pressure temperature based reaction kinetics," cites to an online dictionary definition of "biology," and lists as "references" certain technical journals and publications, all apparently to support its explanation of applicant's proprietary technology. This evidence is untimely and will not be considered. We will not take judicial notice of an online dictionary when there is no indication that the dictionary also exists in printed form; and applicant has neither specified what information in its brief was obtained from or based on the referenced publications nor submitted the relevant portions of the publications. We point out, however, that even if this evidence were considered of record, it would not be persuasive of a different result in this case.

USPQ2d 1222 (TTAB 2002); and In re Engineering Systems Corp., 2 USPQ2d 1075 (TTAB 1986).

Applicant custom manufactures specialty chemicals for others in the nature of L-arabinose, hemicellulose, pectins, proteins, monosaccharides, oligosaccharides, and polysaccharides using pressure and temperature based reaction kinetics. We agree with the examining attorney that the term BIOREFINING, in the context of these services, immediately describes a feature of applicant's manufacturing services and, in particular, the nature of the process used by applicant to manufacture the chemicals.

The specialty chemicals manufactured by applicant are derived from plant matter. As stated on applicant's website, "Biorefining, Inc.'s principal objective is to maximize the extraction of marketable co-products naturally contained in crop or plant matter through use of its proprietary technology." We have gleaned from the evidence as a whole that "biorefining" is a broad term referring generally to the manufacturing processes or technologies for converting plant matter into chemicals and other valuable products.[6] This plant matter (also

[6] The term "biorefining" may have even broader meanings and applications. The evidence shows that it also refers to processes used in the petroleum refining industry to remove unwanted materials such as nitrogen and metals from gasoline and crude oil by using biological catalysts (enzymes) rather than the traditional purely chemical processes. See, e.g., excerpt from *Financial Times* (London, England) August 3, 1995 ("Oil companies have already turned to microbes as a way of "eating" oil spills.") For purposes of this decision, however, we

referred to as "biomass"[7]) may consist of food crops such as corn, soybeans, or wheat, and the waste from food crops such as wheat straw and corn stover (leaves, stalks and husks of corn).[8]

More specifically, the biorefining manufacturing process involves extracting or separating the components (i.e., "sugars") from the plant matter. The components are then refined to produce sugar-derived fuels, such as ethanol, or further refined to produce highly valued sugar-derived chemicals, including those produced by applicant's processes. Thus, the term "bio," in the context of applicant's services, refers to the biological origin of the bulk materials used to manufacture the chemicals or the separated components of the materials; and "refining" refers to the processing of the bulk materials and components.

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have focused on use of the term only as it relates to deriving products from biological resources.

[7] We take judicial notice of the definition of "biomass" as "plants or biological wastes, such as those produced from agriculture or food processing, that are grown to be available for conversion by biotechnological processes to high-grade fuels and specialty chemicals. ..." *The Language of Biotechnology A Dictionary of Terms* (Second Edition) (American Chemical Society, Washington, DC 1995).

[8] The printout from *http://biorefining.waaha.net* ("Center for BioRefining") describes the purpose of "biorefining" as follows: "We must find alternative energy and chemical feedstock sources to supplement the fossil oil supply.... One viable option is to derive energy, materials, and chemicals from biomass – an infinite and renewable source. A new concept "Biorefinery," which is equivalent to a petroleum or oil refinery, is being widely accepted throughout the world. This concept suggests that a wide range of products such as fuels, materials, chemicals, etc., which are traditionally derived from fossil oil, can also be produced from biological resources. ..."

The nature and concept of "biorefining" (or "biorefinery") and the various processes and technologies encompassed by this term are described in the following excerpts from NEXIS articles, patent summaries and third-party websites (emphasis added):

> **Biorefining** is the process of applying new technologies to biobased resources in an effort to extract their hidden economic value. For example, microorganisms can be used to ferment straw into ethanol, but more valuable products can be made from the sugars locked within the straw. Through fermentation, the sugars can be unlocked and made into 1,3-propanediol, a chemical that can be converted into a high performance polyester polymer. *www.ecw.org* (August 2004).
>
> The inventors have come up with an original and effective solution of biological separation **("biorefining"**) of lignine [lignin] cellulosic materials, by which the components of these materials are separated by low cost processes. The result is the separation of lignine cellulosic materials into pentozes, [pentoses] lignine and pure cellulose. The separation of pentozes is effected through a hydrolysis process ... Excerpt of summary for Patent No. 5766895 ("*Method for production of ethyl alcohol*").
>
> A **"biorefinery"** is a relatively new term referring to the conversion of biomass feedstock into a host of valuable chemicals and energy with minimal waste and emissions. The core technology is a unique thermal reactor devoted to sequential, linear biomass fractionation [separation] through steam auto-hydrolysis. ...the reactor uses heat to generate natural acids from the biomass feedstock to effect controlled decomposition... . *www.biovisiontech.ca.*
>
> Researchers Shahab Sokhansanj and Janet Cushman predict that biomass use may reach more than half-billion tons annually during the next decade as lignocellulosic conversion technologies mature and the concept of **biorefining** is put into practice. ... Clark Dale of Bio-Process Innovation ...has been developing and commercializing reactors for production of ethanol from

whey, raw starch and other sugar sources. *BioCycle* (August 2002).

A feasibility study is also under way with Commercial Alcohols (Toronto) on a 120-million liter ethanol plant to be supplied with Quebec corn; construction could begin this year at a site at Varennes, says Dauphin. The ethanol plant could serve as a platform for additional **biorefining** processes, she says. *Chemical Week* (July 19, 2000).

Our FY 2005 request for the Interior-funded portion of the biomass program is $8.7 million. The request supports continuing R&D on processes for the production of chemicals and materials that can be integrated into **biorefineries**. Projects with industrial partners will focus on novel separations technologies; bio-based plastics; novel products from oils; and lower cost and energy use in biomass harvesting, preprocessing, and storage. Additional work with industry, universities, and the national laboratories will focus on improvements to increase the efficiency of individual process steps; for example, catalysts and separations. *Federal Document Clearing House Congressional Testimony* (March 4, 2004).

We at the Department of Energy ...believe a more focused, visible, and integrated national effort can meet the challenges and make the U.S. the world leader in production of bioenergy and bio-based products. Some of those challenges lie in: improving crop yields; introducing new crop varieties tailored for **biorefining**: ... *Federal News Service* (October 28, 1999).

Among the exhibits at the Expo, some will feature: ...**Biorefining Technology** – Demonstrating how **biorefining** technology utilizes diverse, low-value biomass such as corn stover and wheat straw as the feedstock to produce fuel ethanol, specialty chemicals and energy. *Federal Information and News Dispatch, Inc./State Department* (June 20, 2003).

Ethanol is made from sugars. In the United States, corn is the primary source of the sugars. In Brazil sugar comes from sugar cane, in Europe from wheat. Soon the sugars will be extracted from astonishingly

> abundant cellulosic materials like corn stalks, wheat straw, grasses and urban organic wastes. ... Sugar-derived fuels compare favorably with hydrogen fuels. Thanks to previous public policy, Minnesota boasts some 14 **biorefineries**. *Star Tribune* (Minneapolis, MN) (January 9, 2004).
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> Connelly said Sorona has been a springboard toward the development of a **biorefinery** that ferments the entire corn plant – not just the grain – to produce chemical feedstocks and ethanol for fuel. *Philadelphia Inquirer* (December 3, 2003 Wednesday CITY-D EDITION).
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> DuPont is part of a consortium including Deere & Co. ..., enzyme discovery firm Diversa, ... and the National Renewable Energy Laboratory...that recently received $19 million from DOE to develop a **biorefinery.** Diversa has a six-year alliance with DuPont to discover and develop novel biocatalysts for the production of ethanol, PDO and other chemicals from renewable resources such as corn and biomass. ... Cargill Dow has funding from DOE to develop **biorefineries** that use low-cost biomass such as corn stover and other nonfood portions of food crops to produce fuel and chemicals. *Chemical Week* (February 11, 2004).
>
> Biomass and Biorefinery Systems R&D focuses on advanced technologies to transform the Nation's domestic biomass resources into high value chemicals, fuels, and power. ...Work will continue with industry on improved process integration capabilities for industrial **biorefineries**, ...Additional partnerships may further improve the procession operations leading to cheaper biomass-based sugars. Projects to test and evaluate the performance and costs of converting corn fiber to fuels and co-products will also continue. *Department of Energy Documents* (Congressional Testimony) (March 3, 2004).

It can be seen from these excerpts that the concept of "biorefining" relates not only to the conversion of plant matter to ethanol as applicant contends but also to the conversion of plant matter to chemicals, such as those produced by applicant. The evidence further demonstrates that the term "biorefining" is

broad enough to encompass any of the emerging technologies used to accomplish this, including applicant's technology, regardless of how novel and unique the technology may be.

It is clear from applicant's own website that its proprietary technology falls squarely within the recognized meaning of "biorefining" (emphasis in original):

> Biorefining currently maintains three processing technologies that lead to the extraction of finer and finer fractions contained in the biomass. The first level of processing, the Biomilling™ Process, focuses on the gross fractionation [separation] of corn, producing **feed and food grade commodity products**, while increasing ethanol yields and decreasing energy consumption for an ethanol facility. Biorefining's second level of processing, the Bio-Extraction Process, further fractionates the gross fractions contained in plant matter into higher-valued components such as **specialty sugars and proteins**. The final level of Biorefining's processing, the Bio-Conversion Process, focuses on the finest processing of bio-based products, either from the Bio-Extraction Process or obtained elsewhere, into the rarest and most valuable components such as **L-Ribose** and **Levoglucosenone**.

Based on the evidence, we find that "biorefining" is a merely descriptive term for the collective processes and technologies involved in manufacturing specialty chemicals and other valuable products from plant matter and that the term is therefore merely descriptive of applicant's manufacturing services.

Decision: The refusal to register under Section 2(e)(1) of the Trademark Act is affirmed.